

WHAT IS CLAIMED IS:

1. A method for producing a metal/ceramic bonding article, said method comprising the steps of:

arranging a metal member of an alloy containing copper and nickel on at least one side of a ceramic substrate; and

heating said metal member and said ceramic substrate at a temperature between solidus and liquidus lines of said alloy to bond said metal member directly to said ceramic substrate.

2. A method for producing a metal/ceramic bonding article as set forth in claim 1, wherein said heating step is carried out in an atmosphere of an inert gas.

3. A method for producing a metal/ceramic bonding article as set forth in claim 1, wherein said heating step is carried out in vacuo.

4. A method for producing a metal/ceramic bonding article as set forth in claim 1, wherein said alloy is an entire-rate solid solution type alloy.

5. A method for producing a metal/ceramic bonding article as set forth in claim 1, wherein said alloy contains manganese.

6. A method for producing a metal/ceramic bonding article as set forth in claim 5, wherein said alloy contains 1.0 to 4.0 wt% of nickel, 10.0 to 13.0 wt% of manganese and the balance being copper and unavoidable elements.

7. A method for producing a metal/ceramic bonding article as set forth in claim 1, wherein said temperature between solidus and liquidus lines of said alloy is not higher than a temperature which is higher than said solidus line of said alloy by 50 °C.

8. A method for producing a metal/ceramic bonding article as set forth in claim 1, wherein said alloy is a manganin alloy, and said temperature between solidus and liquidus lines of said alloy is in the range of from 960 °C to 990 °C.

9. A method for producing a metal/ceramic bonding article as set forth in claim 2, wherein said inert gas is nitrogen or argon gas.

10. A method for producing a metal/ceramic bonding article as set forth in claim 1, wherein a thinner plate than said metal member is provided on a peripheral portion of said metal member.

11. A method for producing a metal/ceramic bonding article as set forth in claim 10, wherein said plate has a thickness of 0.2 mm or less.

12. A method for producing a metal/ceramic bonding article as set forth in claim 1, wherein said metal member is worked so as to have a predetermined shape before being arranged on said at least one side of said ceramic substrate.

13. A method for producing a metal/ceramic bonding article as set forth in claim 1, wherein plating is carried out on the whole or part of a surface of said metal member.

14. A method for producing a metal/ceramic bonding article as set forth in claim 1, wherein said metal/ceramic bonding article is an electronic member for resistance.

15. A method for producing a metal/ceramic bonding article as set forth in claim 3, which further comprises the steps of:

arranging said metal member, which is arranged on

said at least one side of said ceramic substrate, on a supporting plate via a spacer; and

arranging a weight thereon via a spacer,

wherein said heating step is carried out in a vacuum furnace.

16. A metal/ceramic bonding article for an electronic member, said metal/ceramic bonding article comprising:

a ceramic substrate; and

a metal plate of an alloy containing copper and nickel, said metal plate being bonded directly to at least one side of said ceramic substrate,

wherein a heat cycle resistance is 30 cycles or more, and said metal plate has a thickness of less than 0.4 mm.

17. A metal/ceramic bonding article for an electronic member as set forth in claim 16, wherein said alloy contains manganese.

18. A metal/ceramic bonding article for an electronic member, said metal/ceramic bonding article comprising:

a ceramic substrate; and

a metal plate of an alloy containing copper and nickel, said metal plate being bonded directly to at least one side of said ceramic substrate,

wherein said metal plate has a surface roughness of $10\mu\text{m}$ or less.

19. A metal/ceramic bonding article for an electronic member as set forth in claim 18, wherein said alloy contains manganese.